High Performance
Digital Video Recorder
With Linux OS

The default user name is : admin
The default password is : 1234

Manual
E Series 4CH Time Lapse

CAUTION

1. INSTALLATION ENVIRONMENT

1.1 Keep away from heat and extreme-temperature
1.2 Avoid direct sunlight
1.3 Keep away from humid areas
1.4 Place horizontally
1.5 Do not place anything on top of DVR
1.6 Do not block the fan

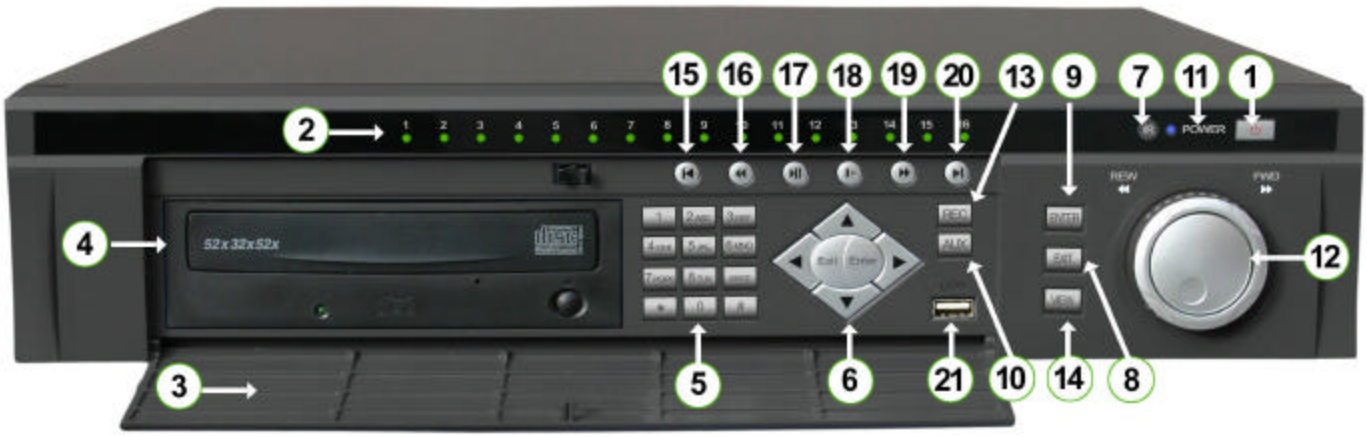
2. ACCESSORIES

Refer to the particular packing list

2.1 One power cord
2.2 One CAT5e network patch cable (Not a crossover cable)
2.3 One user manual
2.4 One installation CD
2.5 One ownership registration card
2.6 One remote control
2.7 Two AAA batteries

Chapter 1 - Table of Key Functions

1.1FRONT PANEL



- **Note:** Clockwise outer jog shuttle stands for right and anticlockwise outer jog shuttle stands for left. Clockwise inner jog shuttle stands for down and anticlockwise inner jog shuttle stands for up.

1.2 TABLE OF KEY FUNCTIONS

Order	Key name	Logo	Function
1	Power switch and indication light	**POWER**	Power switch - Power off by pressing the key 4 seconds.
2	Recording light	**LED**	If the LED light is Green, it means the recording is on
3	Plastic Cover		Dust-proof Cover
4	CD-RW / DVD-RW		Used to Back-up records
6	Left & Right Arrows	◀ ▶	L & R On screen Cursor Control; shifting level 1 and level 2 menus; Left and Right Camera Pan control.
	Up & Down Arrows	▲ ▼	Up and Down Onscreen Cursor Control; change setup; change number; Camera Tilt control.
7	IR Remote		Used to receive the remote signal.
8	Cancel	**EXIT**	Cancels cursor selection.
			During playback, restore to real-time monitor.
9	Enter	**ENTER**	Enter Cursor Selection.

			Enter main menu.
10	Function Key	**AUX**	In the Full Screen Mode: Press the key to display the menu of the Camera PTZ.
			When setting Motion Detection fields, Fn1 Enables Cursor field selection.
			During playback, display the playback status bar
			During playback work with number key to realize PIP for the playback and real-time monitor.
11	Indication light		Indication light
12	Jog shuttle		Direction control: outer Ring for Left and Right direction, inner Ring for up and down; When in playback, outer circle can control reverse and multi-speed play.
13	Record	**REC**	Start/stop recording, use with arrow keys
14	Switch View Mode	**VIEW**	Select for Multi-Screen; During playback, shift between Playback and Real time display.
15	Play last section	⏮	Play the previous recording file.
17	Slow play	?	3 levels of slow play speed adjustments: (15f/S - 5f/S & frame by frame)
18	Play/stop	▶/⏸	Play/stop
			When in real time mode, press to enter record search menu
19	Fast Forward	⏩	3 levels of fast play speed - X2 - X4 - X8.
20	Play next section	⏭	Play the next recording file after the current file.
21	USB		Used for external storage such as memory stick or Hard drive Or for USB mouse control (additional USB on back as well)

1.3 BACK PANEL

- **Back Panel may be different according to the model**

- **Power control:** power on/off, power outlet, power fan
- **Main functions:** RS-485, RS-232, VGA, USB, 1394 port, RJ-45
- **Audio and video input and output:** audio output, audio input, video output, video input

  Note: Use crossover cable to connect DVR directly with computer.

1.4 HARD DISK INSTALLATION

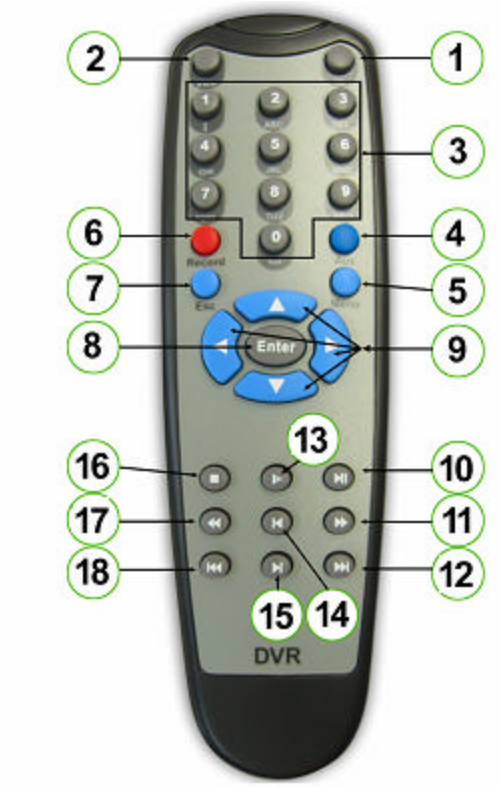
		1. Remove the outer case of the DVR
		2. Remove the hard drive holder from the internal unit
		3. Install Hard Drive on the bottom level or the bracket.
		4. Connect Hard Drive bracket.
		5. Connect Hard Drive data cable and set the jumper to master.

		6. Connect Hard Drive power cable
		7. Close the cover and install the screws

1.5 REMOTE CONTROL

Remote Control Functions

1. ID
2. View
3. Number Pad
4. Auxiliary
5. Menu
6. Record
7. Escape
8. Enter
9. Cursor Keys
10. Skip to next
11. Jump-backward
12. Fast-forward
13. Play
14. Next Record
15. Slow-forward
16. Play/Pause
17. Stop



CHANNEL INFORMATION:

1 Recording

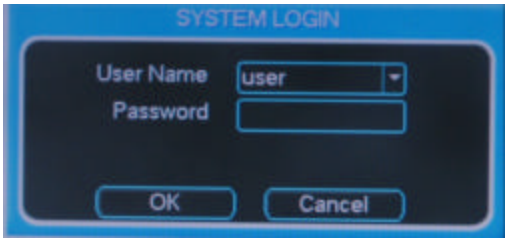
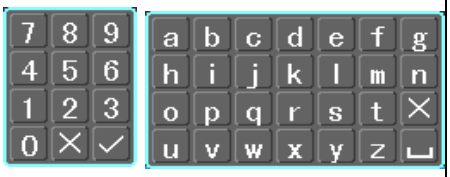
2 Motion detection

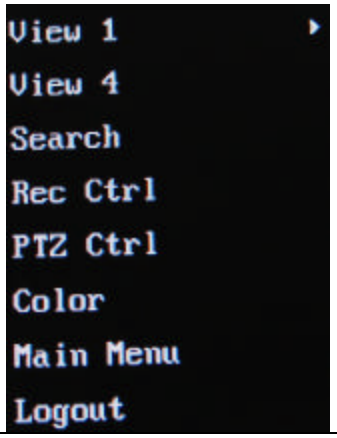
3 Video loss

Control bar Playback, display channel date, time, speed and progress, control speed circle playback and full screen.
Control bar is hidden in full screen, click mouse to display.

1.6 MOUSE CONTROL

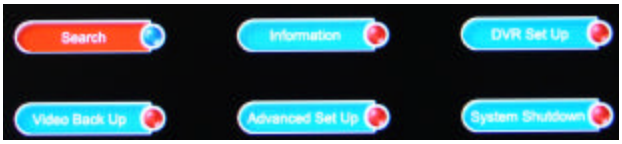
- Right hand operation is taken as an example
- Including the front panel and remote controller, USB mouse is supported for DVR operation. Connect USB mouse to the USB port on front or back of the DVR, and start mouse operation.

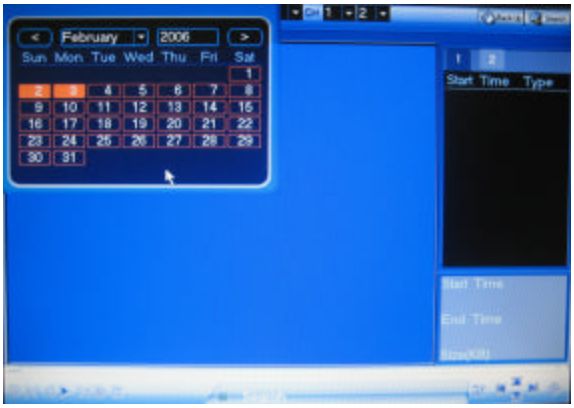
Left Click on the Screen	'User and Password' dialog pops up if the user has not logged in, please enter the default username and password. 
	User name: admin Password: 1234
	Execute operation
	Pop up drop-down frame
	Numeric input or Alfa input (upper and lower case) supported; Click icon to finish input: click X to reset and v to confirm input or close input panel 

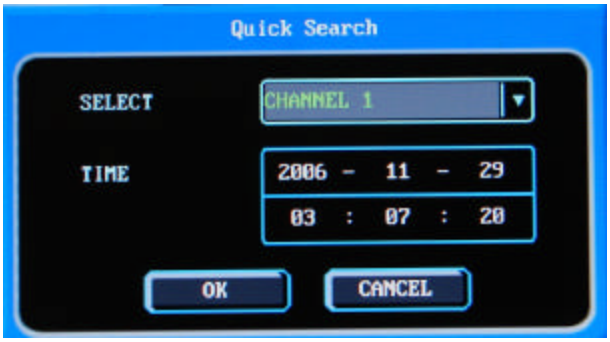
<table>
<tr><td rowspan="2">Right Click on the Screen</td><td>Shortcut menu popup under real-time monitoring: Multi-screen (related to the number of channels supported: single-screen/four-screen for 4CH DVR), pan-tilt control (protocol correctly set up), image color, record search, manual record, alarm input, alarm output, main menu and etc. Pan-tilt control and image color set up under corresponding channel screen.
 
</td></tr>
<tr><td>Right click to cancel the setup and exit.</td></tr>
<tr><td rowspan="3">Wheel</td><td>Increase and decrease numerical value</td></tr>
<tr><td>Switch between options in combo box</td></tr>
<tr><td>Page-up and page-down</td></tr>
<tr><td>Cursor Moving</td><td>Cursor moving</td></tr>
<tr><td rowspan="2">Cursor Dragging</td><td>Motion detection area selection</td></tr>
<tr><td>Area covering selection</td></tr>
</table>

Chapter 2
4 Channel Menu Operations

Chapter 2 – Menu Operations

Main menu	Description	Using the mouse
	❖ SEARCH ❖ INFORMATION ❖ DVR SET UP ❖ ADVANCE SET UP ❖ VIDEO BACK UP ❖ SYSYTEM SHUTDOWN	Left click on the screen and then select main menu.

Search	Description	Using the mouse
	Realize quick search, list search and playback.	Left click on the screen and left click on search.

Quick Search	Description	Using the mouse
	Exact search according to channel and time.	Left click on the screen and left click on search and left click on quick search.

List Search

Description

Search according to recording type; all, regular alarm, md (motion detection), result is displayed in list. R – regular, A – alarm, M – motion detection.

Using the Mouse

Left click on the screen and left click on search and left click on list search.

Hard Disk (to setup hard disk)

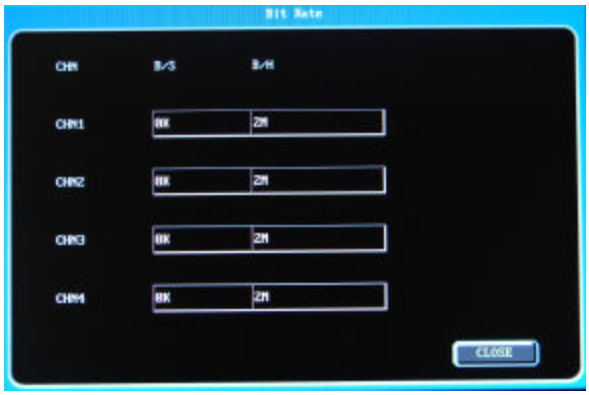
Description

IDE connection state, each or all HDD capacity, free space, recording start and end time.

Using the mouse

Left click on the screen and left click on information and left click on hard disk.

Bit Rate



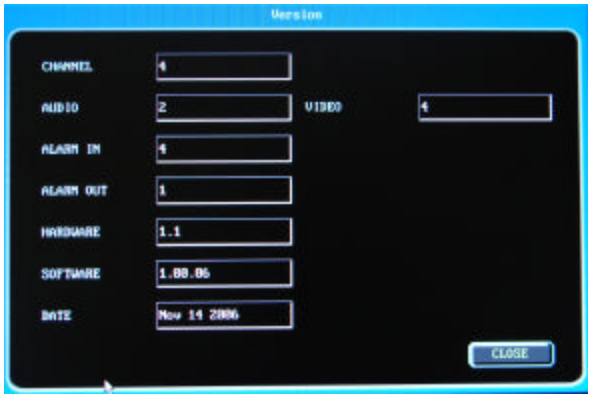
Description

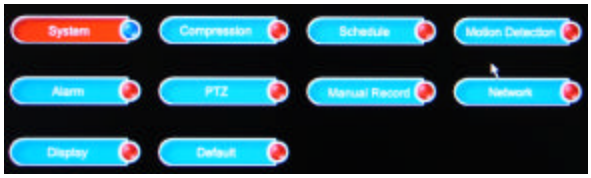
Display Bit rate (Kb/s), of every channel.

Using the mouse

Left click on the screen and left click on information and left click on bit rate.

Log	Description	Using the mouse
	Display system logs of important events.	Left click on the screen and left click on information and left click on log.

Version	Description	Using the mouse
	Display hardware characteristic, software version and build date.	Left click on the screen and left click on information and left click on version.

DVR Set Up	Description	Using the mouse
	❖ SYSTEM ❖ COMPRESSION ❖ SCHEDULE ❖ MOTION DETECTION ❖ ALARM ❖ PTZ ❖ MANUAL RECORD ❖ NETWORK ❖ DISPLAY ❖ DEFAULT	Left click on the screen and left click on DVR setup.

System

Description

Basic parameters such as system time, recording, mode, serial number and video mode.

Using the mouse

Left click on the screen and left click on DVR set up and left click on system.

Compression

Description

Setting of parameters such as video encoding mode, frame rate, quality.

Using the mouse

Left click on the screen and left click on DVR set up and left click on compression.

Schedule

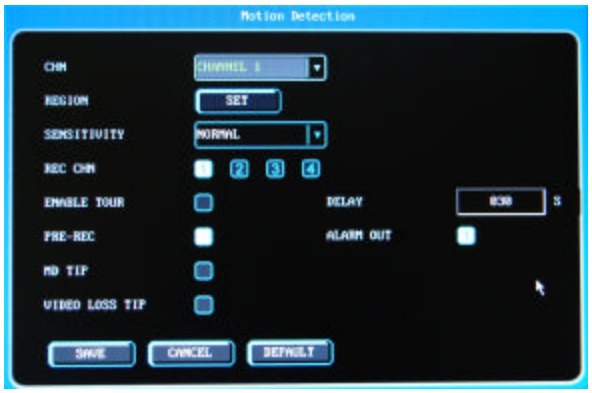
Description

Time slots for scheduled operation (record, receive exterior alarm, open motion detection each day. Two time slots are available for each type.

Using the mouse

Left click on the screen and left click on DVR set up and left click on schedule.

Motion Detection



Description

Setting parameters such as motion detection level, area, and handle alarm output and start recording.

Using the mouse

Left click on the screen and left click on DVR set up and left click on com port.

Alarm

Description

Setting of exterior alarm output and responding record parameter. NO: Normal Open. NC: Normal Close.

Using the mouse

Left click on the screen and left click on DVR set up and left click on network.

PTZ

Description

Configure PTZ cameras: protocol, communication parameters, and communication address.

Using the mouse

Left click on the screen and left click on DVR set up and left click on PTZ.

Manual Record

Description

Setting of recording

Using the mouse

Left click on the screen and left click on DVR set up and left click on manual record.

Network

Description

Set up network parameters: IP address, subnet mask, default gateway, TCP/IP ports.

Note: For more information on DDNS, please visit http://dynamicipview.com

Note: If the DVR is directly connected to the modem / DSL, click on enable PPPoE and enter the user name and the password and click save.

Using the mouse

Left click on the screen and left click on DVR set up and left click on network.

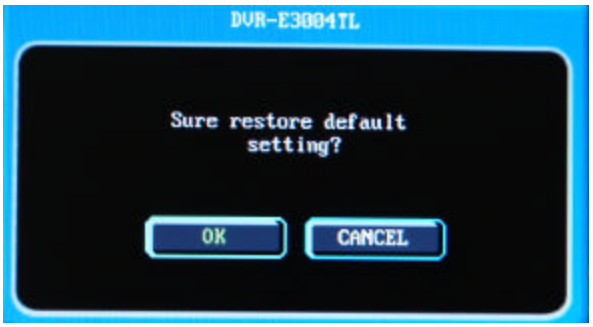
Display

Description

Setting of menu output and monitoring parameters.

Using the mouse

Left click on the screen and left click on DVR set up and left click on display.

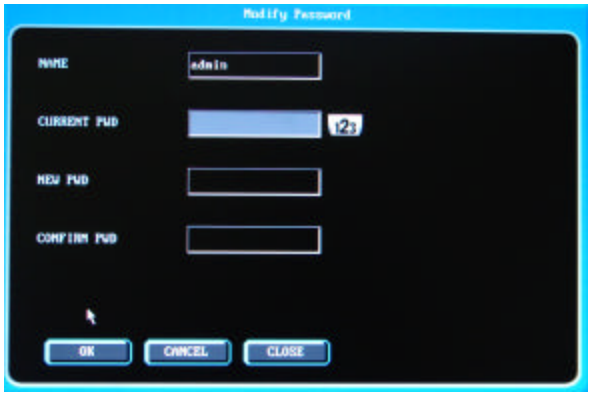
Default	Description	Using the mouse
	Restore system parameters to the factory default.	Left click on the screen and left click on DVR set up and left click on default.

Video Backup	Description	Using the mouse
		Left click on the screen and left click on video backup.

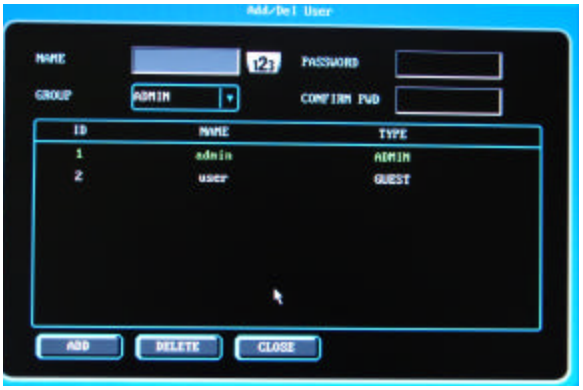
Advanced Setup	Description	Using the mouse
	❖ HDD MANAGER ❖ USER ADMIN ❖ UPDATE	Left click on the screen and left click on advanced set up.

HDD Manager	Description	Using the mouse
	Setting hard disk such as write mode, length of video and format HDD.	Left click on the screen and left click on advanced set up and left click on HDD manager.

User Admin	Description	Using the mouse
	❖ MODIFY PASSWORD ❖ ADD/DELETE USER.	Left click on the screen and left click on advanced setup and left click on user admin.

Modify Password	Description	Using the mouse
	To modify user password.	Left click on the screen and left click on advanced set up and left click on user admin and left click on modify password.

Add User / Delete User



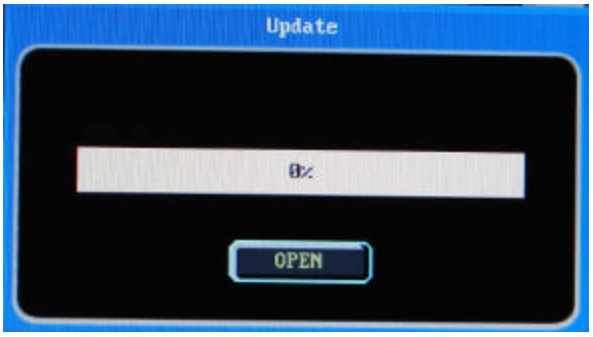
Description

To add users and delete users from the system.

Using the mouse

Left click on the screen and left click on advanced set up and left click on user admin and left click on add user.

Update



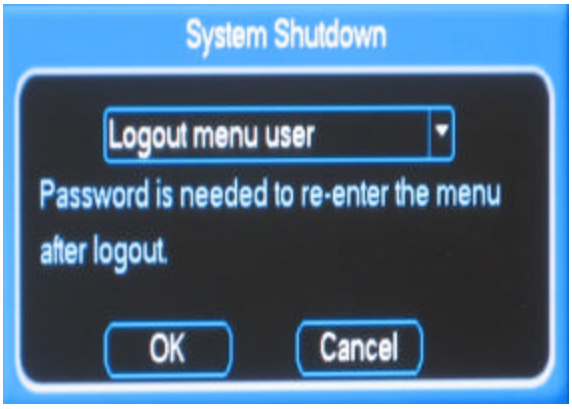
Description

Update system software from network or USB.

Using the mouse

Left click on the screen and left click on advanced set up and left click alarm out.

System Shutdown



Description

System operation such as logout, shutdown, and restart.

Using the mouse

Left click on the and left on system shutdown.

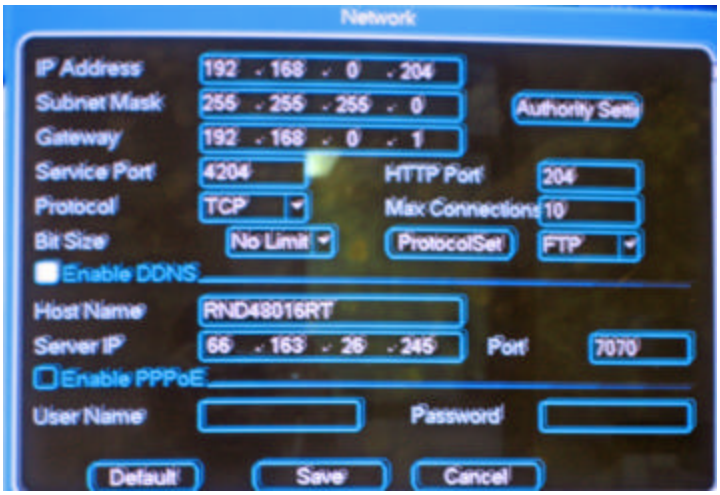
Chapter 3 DDNS Setup

You must register the name (code) with dynamicipview.com and enter that registration code to use as your identification on the Dynamic IP server for DVR.

An IP address is the address of the computer on the internet. Most providers assign a new IP address every time a connection is made to the internet. The result is that when an IP address changes the connection to the internet is lost. The IP address of both server and the client computer must be linked to keep the connection between them. Dynamic IP servers are designed to act as a third party in order to keep a static connection.

DVR Setup

1. Go to web site http://www.dynamicipview.com , complete the on-line registration form.
2. Write down the information after you successfully submit the registration form:
Server Host, User Name, Directory, Password.
3. Log on to DVR, select "Main Menu", select "DVR SET UP", select "NETWORK".



4. On "NETWORK" setting menu, enter DVR's IP, subnet mask, gateway. Choose the desired service port and http port. If you are not sure which IP address and port should be used, please contact your network administrator or call our technical support for detail information.

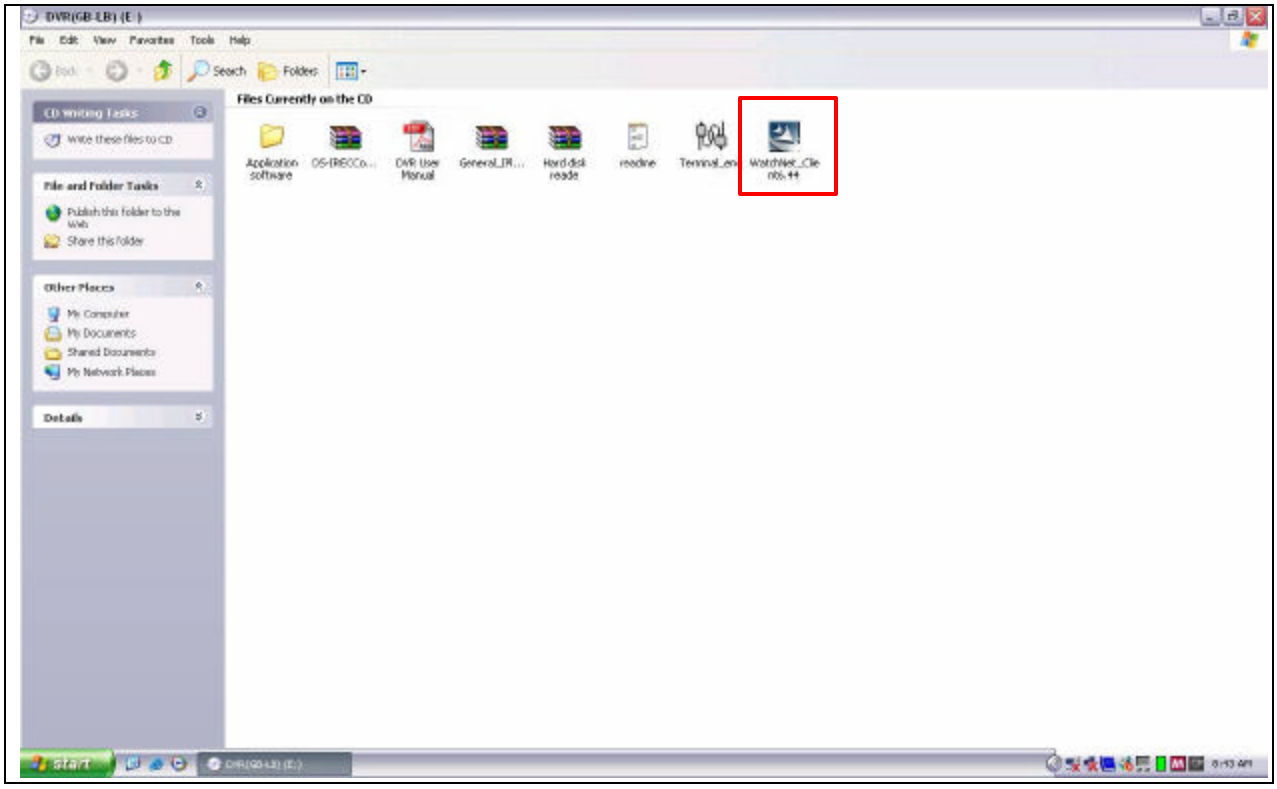
5. Select "DDNS/PPPOE" setting menu.
• DDNS ENABLE: checked
• SERVER IP = *66.163.26.245*
• SERVER HOST = *(enter the host name that you have registered on-line into this box)*
• PORT = *7070*
• PPPOE: unchecked

Click "SAVE" and exit. It might prompt to restart your DVR system depending on different version of firmware and hardware.

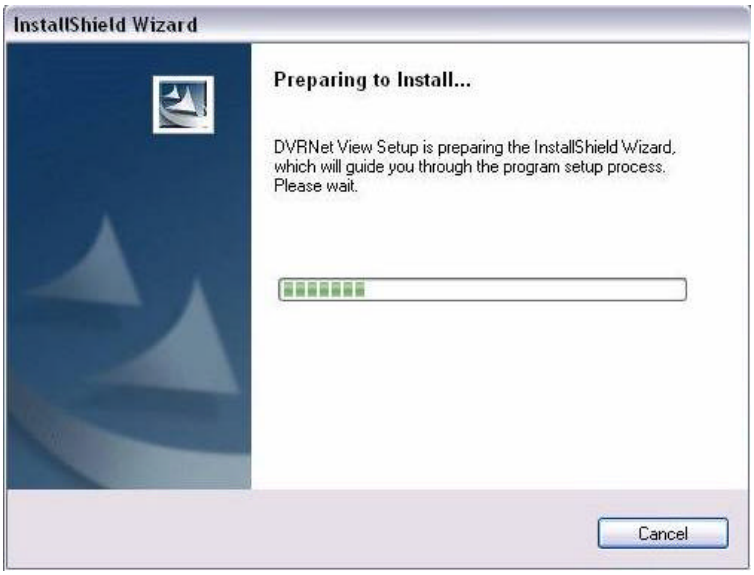
6. Select "FTP" setting menu.
• UPLOAD ENABLE: checked
• FTP IP = *66.163.26.245*
• FTP PORT = *21*
• DIRECTORY = *(enter the directory that you have registered on-line into this box)*
• USERNAME and PASSWORD = *(enter the user name and password that you have registered on-line into these boxes)*

Click "SAVE" and exit. It might prompt to restart your DVR system depending on different version of firmware and hardware.

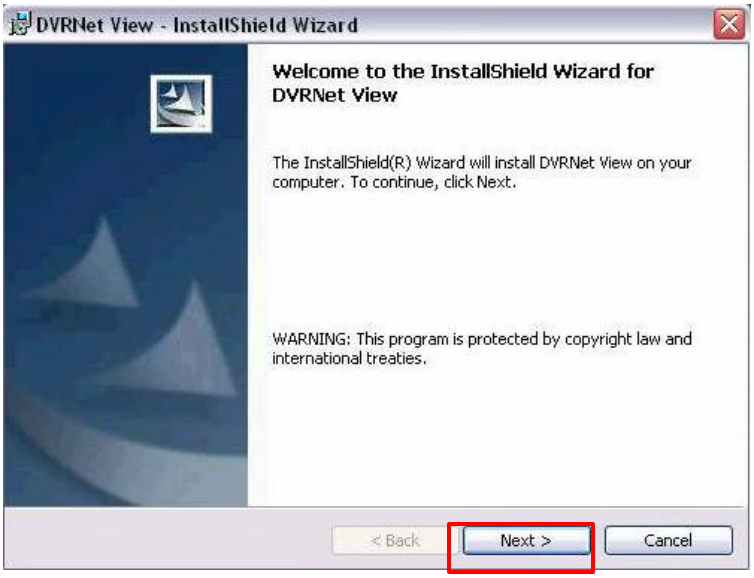
Chapter 3.1 WatchNet Client Software Installation



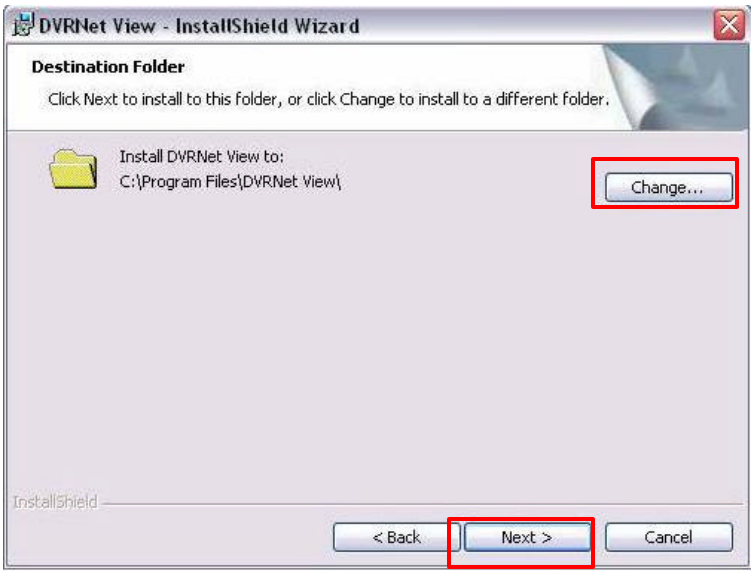
❖ Insert the software CD in to the CD or DVD-Rom drive and then left click on my computer and then left click on CD or DVD-Rom drive and left click on WatchNet_Client 6.44.


InstallShield Wizard
Preparing to Install...
DVRNet View Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.
Cancel

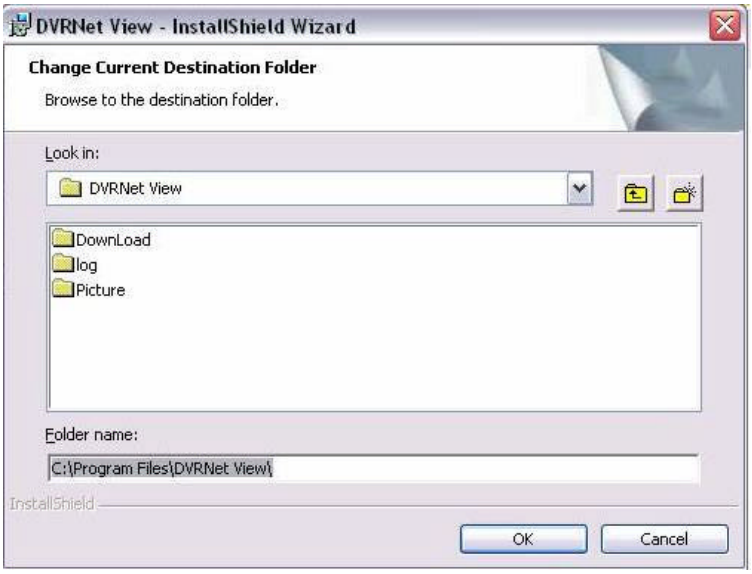
❖ When the WatchNet_Client6.44 icon in the CD or DVD-Rom drive is left clicked, the software would prepare to install.


DVRNet View - InstallShield Wizard
Welcome to the InstallShield Wizard for DVRNet View
The InstallShield(R) Wizard will install DVRNet View on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

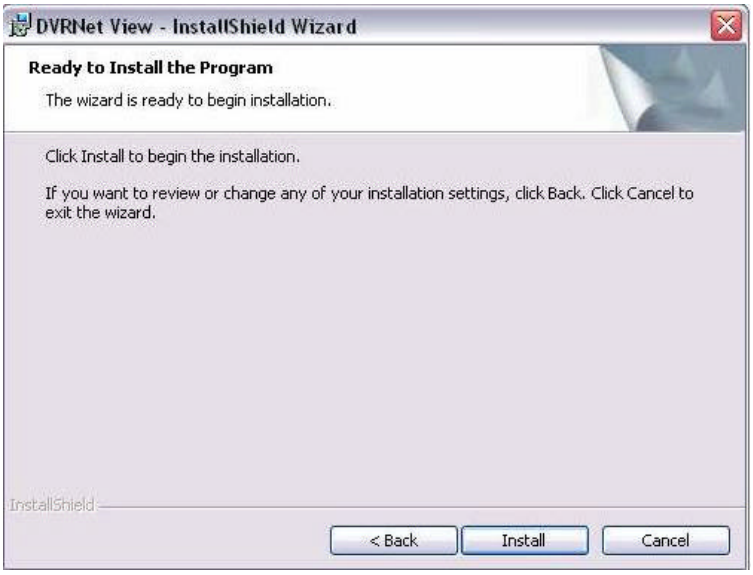
❖ To continue with the installation click next.


DVRNet View - InstallShield Wizard
Destination Folder
Click Next to install to this folder, or click Change to install to a different folder.
Install DVRNet View to:
C:\Program Files\DVRNet View\
Change...
InstallShield
< Back
Next >
Cancel

❖ Click next to install to the folder, or click change to install to a different folder.



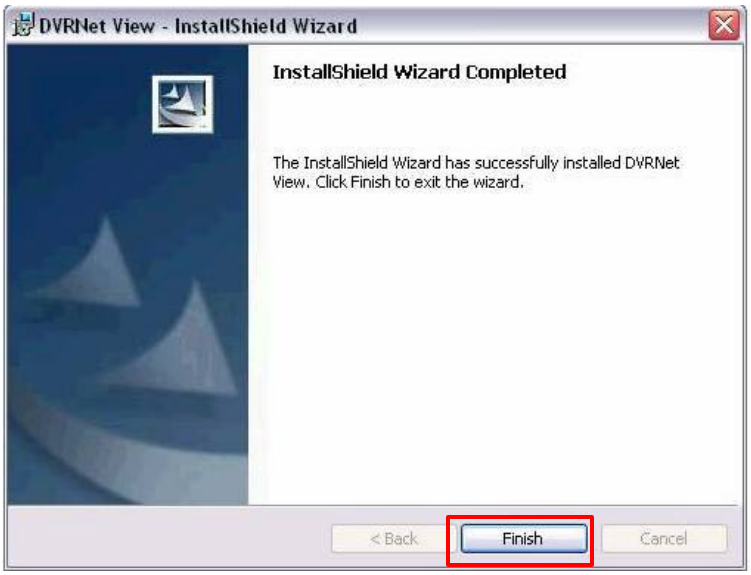
❖ When left clicked on change on the previous screen, the screen above would appear. Browse to the destination folder and click ok to continue with the installation.


DVRNet View - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

❖ Click install to begin the installation and to review or change any of installation setting click back or click cancel to exit the installation wizard.

DVRNet View - InstallShield Wizard
Installing DVRNet View
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs DVRNet View. This may take several minutes.
Status:
InstallShield
< Back
Next >
Cancel

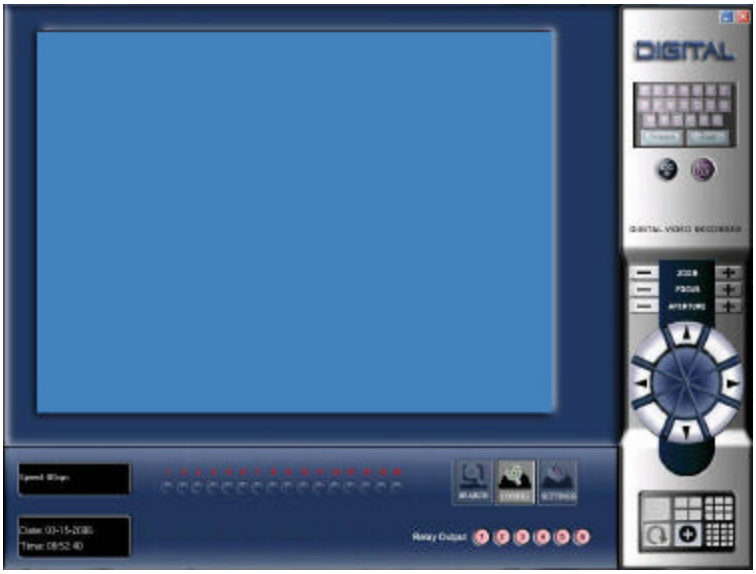
❖ During the installation in may take several minutes, according to the system speed.


DVRNet View - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed DVRNet View. Click Finish to exit the wizard.
< Back
Finish
Cancel

❖ Now the DVRNet View has successfully installed, left click on finish to exit the wizard.

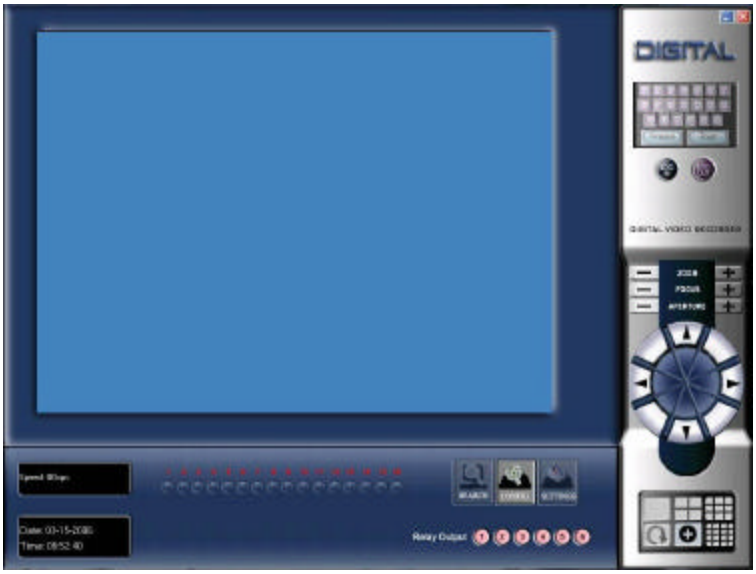
❖ Left click on DVRNet View icon in the desktop to open the DVRNet View.

- If the DVRNet View icon doesn't appear in the desk top, left click on the start and then left click on program and then left click on DVRNet View and left click on DVRNet View again to open the DVRNet View.



- When the DVRNet View icon is left clicked, the DVRNet View screen would appear.

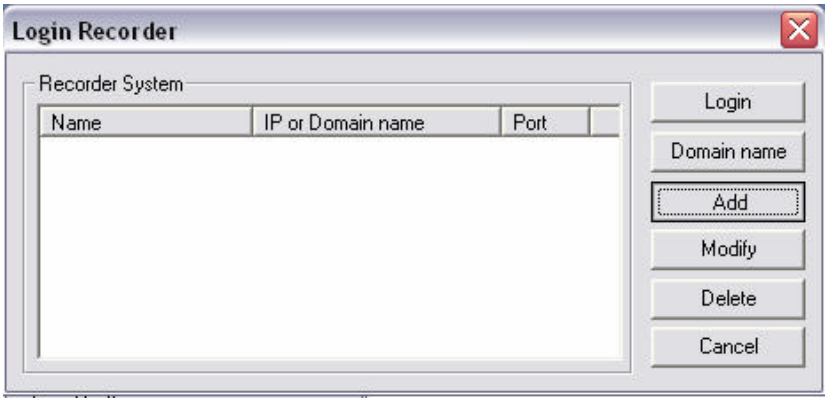
Chapter 3.2 First Use



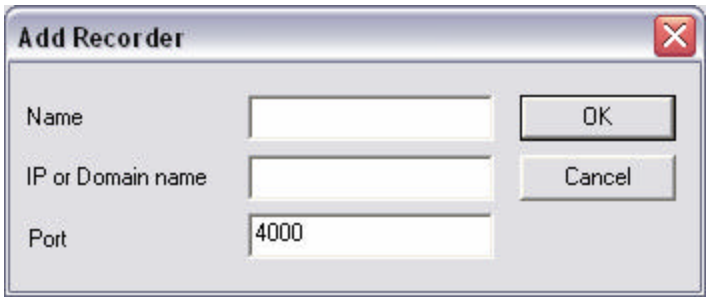
❖ The following screen will appear. Click on

.

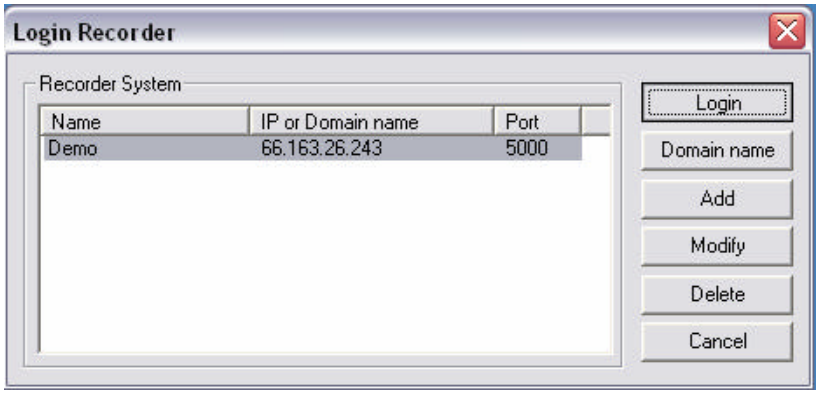
❖ For access through high speed internet or network select “Network Login” and click “OK”.



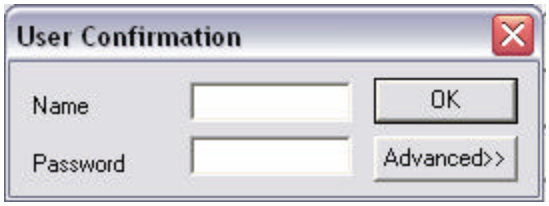
❖ Click on “Add” to add a new site to connect to.



❖ Enter a name for the remote site you wish to connect to. Then enter the IP address of the DVR followed by the TCP port that is set for the DVR to connect to. This port is set in the network section of the DVR.



❖ Select the site and then click on “Login”

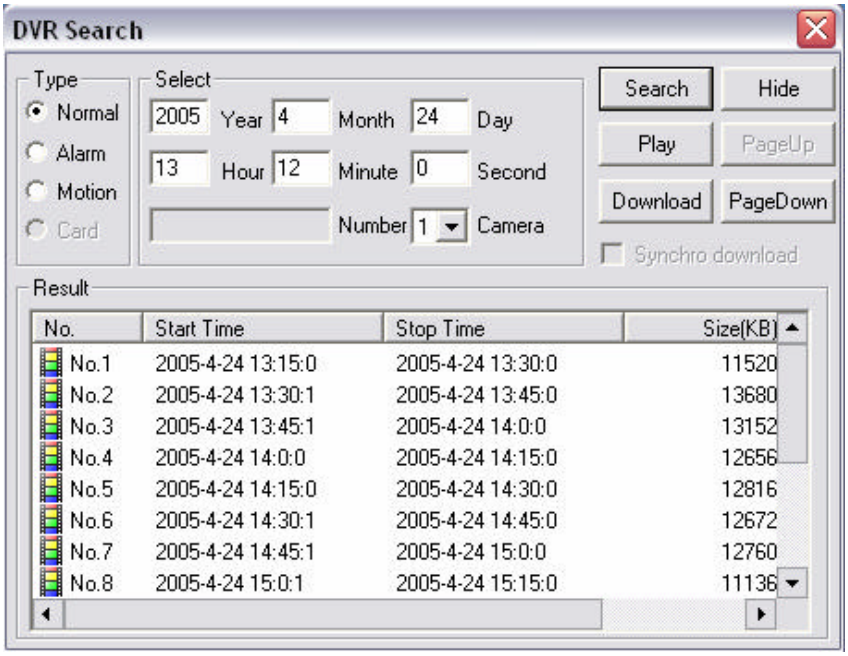


❖ Enter the username and password to log into the DVR.

The default user name is: admin
The default password is: 1234

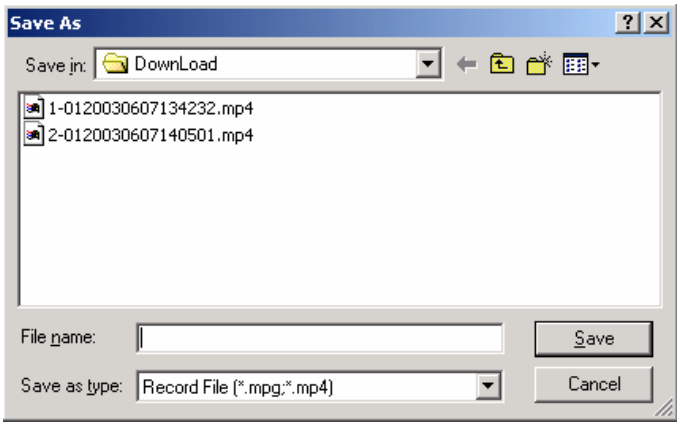
❖ To search through and playback recorded video, click on “DVR search” and then enter the date, time and camera number you want to search. Then click on “SEARCH” and the following window will appear.

DVR Search :



❖ Enter recording time, channel number and type (Normal, Alarm/Sensor, Motion) and the results will appear below. The screen displays 15 records at a time starting from the entered search time onwards. Click on “Page Up” and “Page Down” button to get to the next next/previous group of 15 records. Once the required record is located, double click on it and system will play the record. This video can be played in full screen mode. You can also

simultaneously download records to your computer. By default the records are saved in the “Download” folder in the C drive (C:\Download).



- To download the video clip to your computer, select the clip and then click on download. You can select multiple clips and the software will download them all simultaneously. After clicking on download the following screen will appear:

- You must enter some text for the file name and the rest of the name will be auto generated using the following scheme.

- File name of the download consists of your entered text followed by year (e.g. 2006), month (e.g. 05), date (e.g. 29), hour (e.g. 16), min (e.g. 48), sec (e.g. 41) and camera number (e.g. [1]).

- Once the file name is entered click on save and the file will be downloaded. The following screen displays the progress of the download.

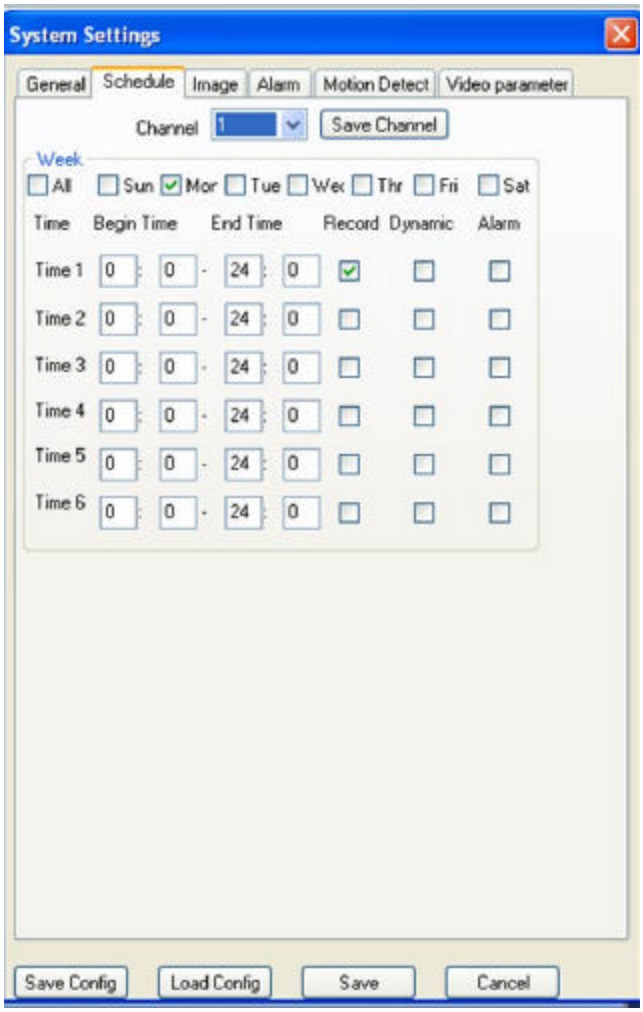
- Click on the “DVR SETUP” button and a window will appear with 6 options, System, Schedule, Image, Alarm, Motion setup and Video parameters.
- Note: If a menu item is greyed out, it can’t be changed and can only be modified directly from the DVR.

General:

- **When Disk Fill**: This option allows you to prevent the DVR from automatically overwriting the hard drive when it is full.

- **PTZ Control**: Use these options to enter the control information for the PTZ camera.

Schedule :

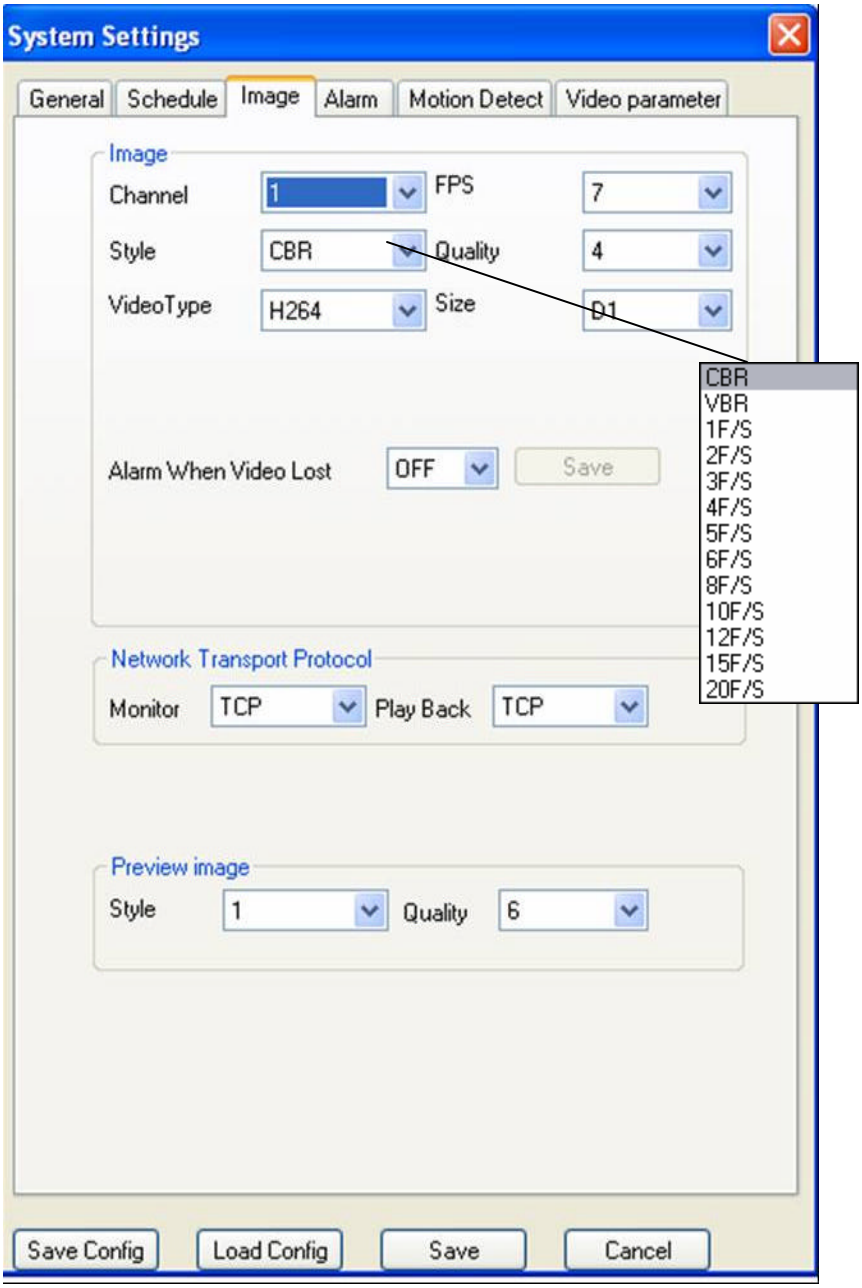


- **Week**: Use to define unique recording schedules for each day or select "All" to apply the same schedule for everyday.

- **Normal 1 / 2**: Use this setting to record all the time. There can up to 2 start and end times for this recording method. The time entered from the start to end duration will have continues recording. And as mentioned in the note above, If you want to record on normal for 24 hours then set TIME1 as 00:00 to 24:00 in ON status and TIME2 as OFF.

- **Motion Recording 1 / 2**: Use this setting to record only if there is motion detected by the camera. There can up to 2 start and end times for this recording method. The time entered from the start to end duration will have motion only recording. And as mentioned in the note above, If you want to record on motion only for 24 hours then set TIME1 as 00:00 to 24:00 in ON status and TIME2 as OFF.

Image :



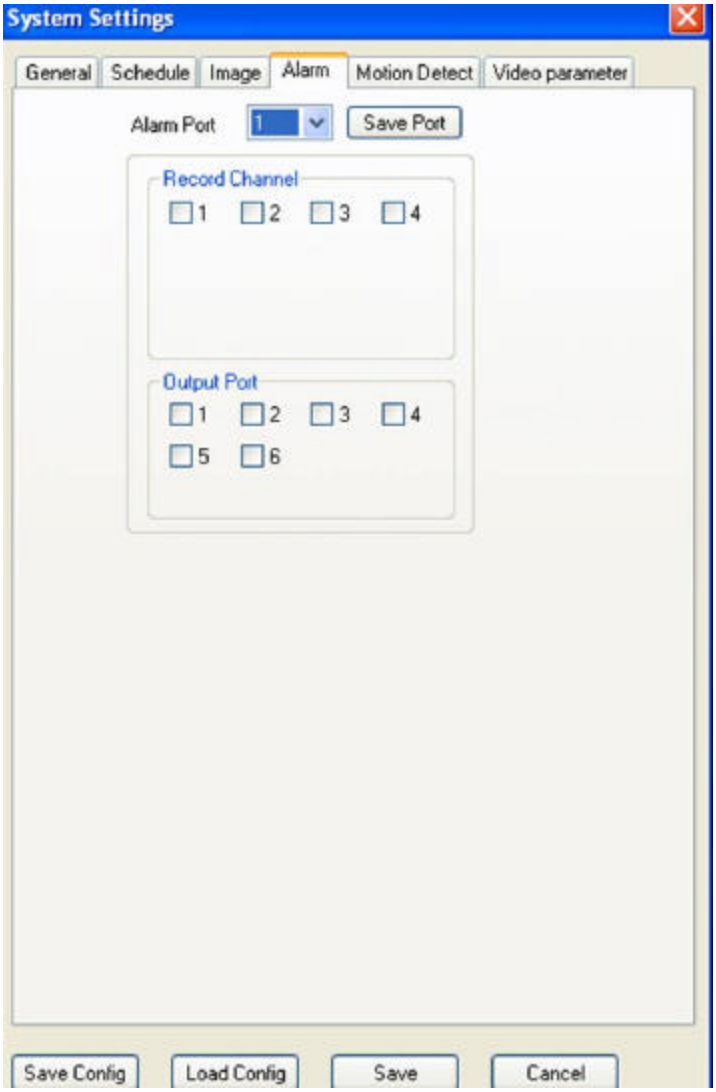
- **Camera**: Can be selected to modify settings for individual camera or select "ALL" to apply changes to the recording schedule for all cameras.

- **Style**: There are 2 recording formats, VBR (Variable Bit Rate) and CBR (Constant Bit Rate). The CBR by default records at the maximum possible frame rate but it can be manually lowered to 1 to 20 frames per seconds as shown above.

- **Quality**: Use this option to select the quality of the video. The higher quality takes up more space on the hard drive. There are 6 qualities 128Kb/S, 256Kb/S, 384Kb/S, 512Kb/S, 768 Kb/S, and 1 Mb/S.

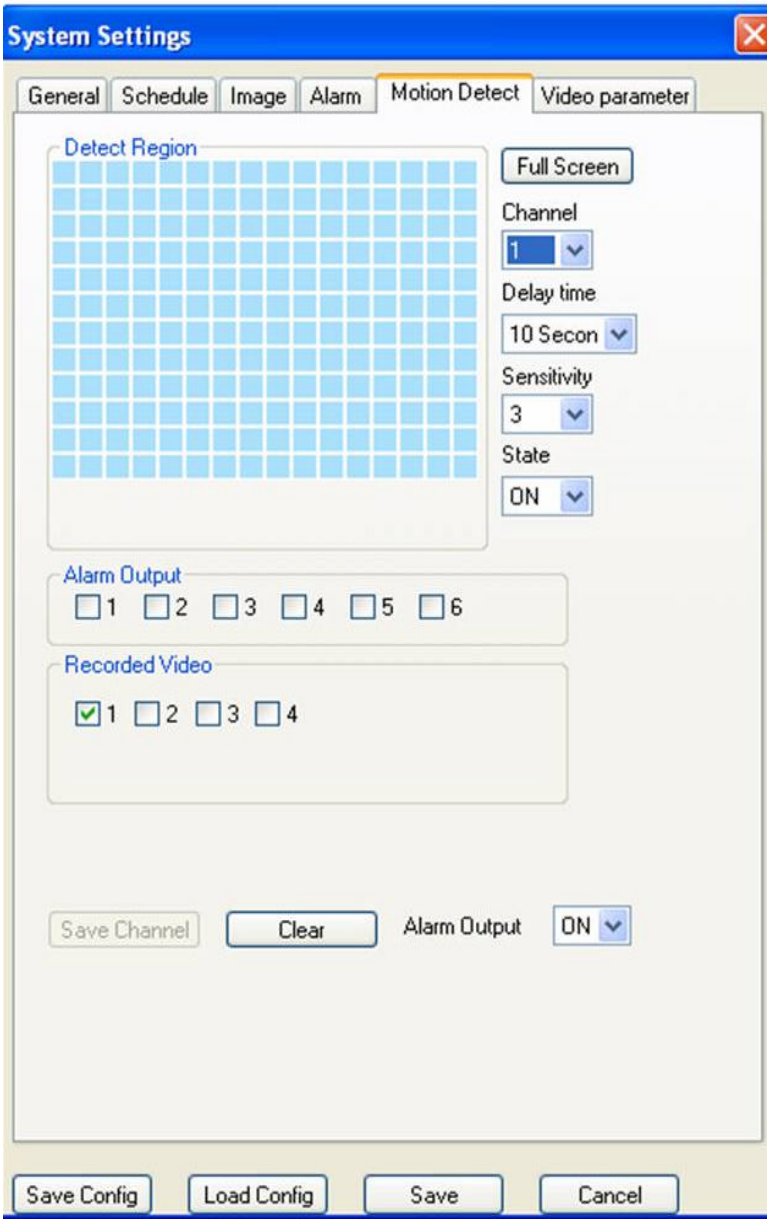
- **Video loss output**: Use this to trigger a relay in case of video loss.
- **Network Protocol**: Use this option to select the network settings.

Alarm :



- **Alarm Port**: Can be selected to modify response to an individual sensor input or select "ALL" to apply changes to the action due to all input sensor.
- **Record camera**: For each sensor input signal we can force a camera to start recording.
- **Output Port**: For each sensor input signal we can trigger a relay.

Motion Setup :



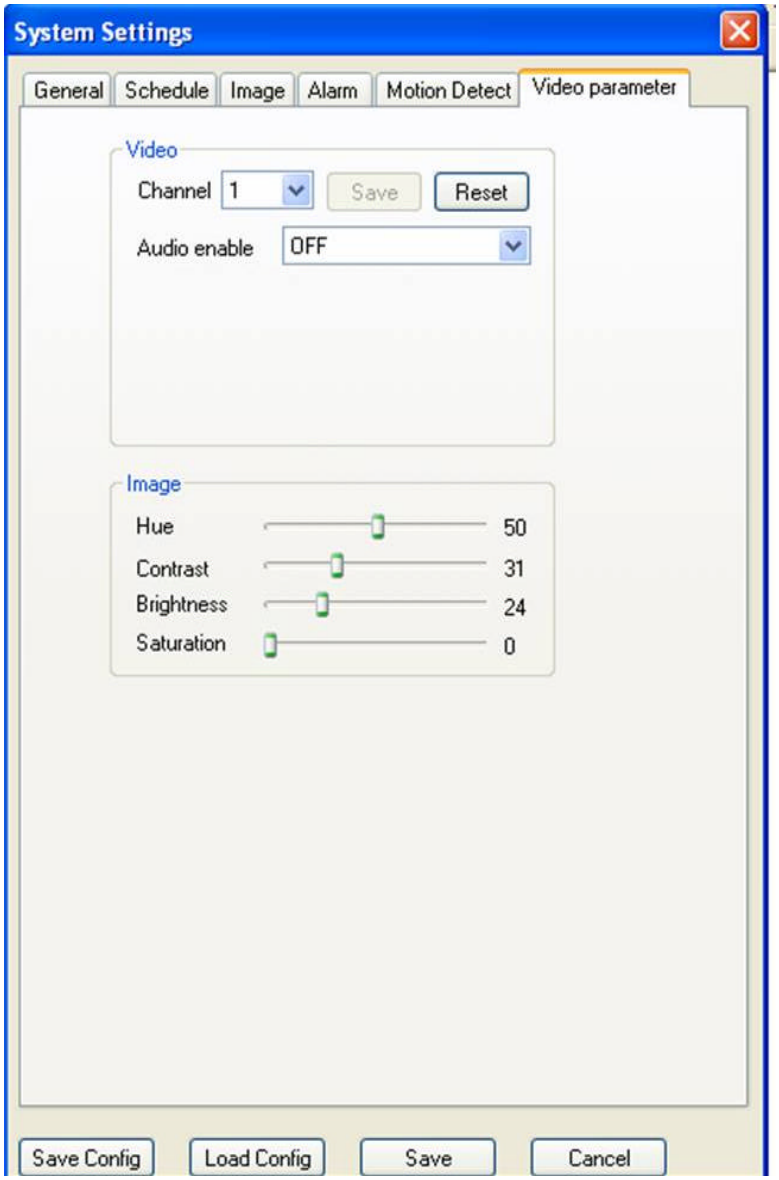
- **Detection Region**: The squares that are highlighted by the blue squares are the region, in which the camera will detect motion.

- **Full Screen**: Select the full screen to enlarge the video from the camera to the full screen allowing you to easily select the detection region. To exit the full screen mode right click any where on the screen.

- **Post Rec**: This is the setting for the number of seconds of recording after motion is detected.

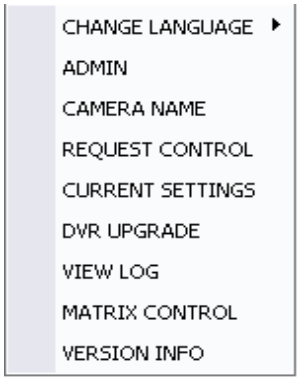
- **Sensitivity**: This is to adjust the sensitivity of the motion detected in the detection region. The options are low, normal and high.

Video Parameter :

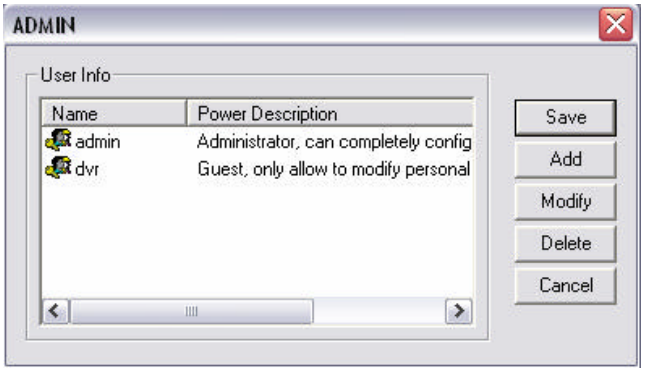


- This window can be used to set various attributes like the video Hue, Contrast, Brightness and Saturation, the OSD (On Screen Display) settings and audio options.

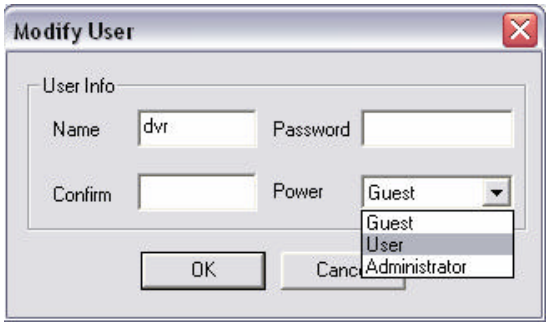
- Click on DVR Config and the following options menu will appear. The details of the function are described below.



- **Change Language :** Use this option to change the default language.

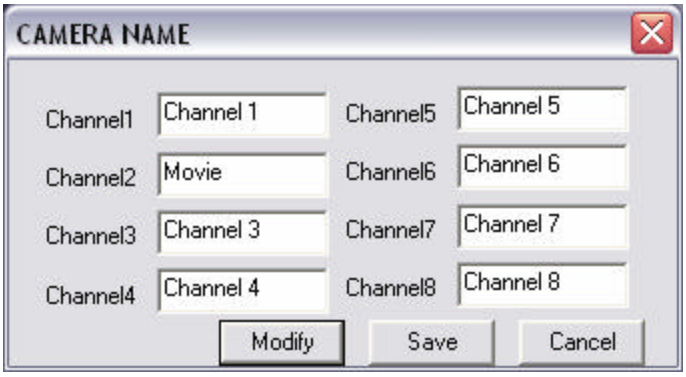


- Use this option to add, delete and modify users. Also you can modify access level to the DVR system for each user.



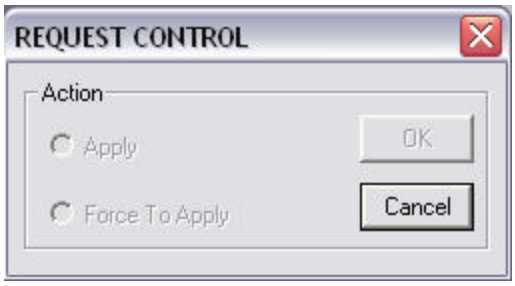
- There are 3 access levels.
- Guest: Only has access to view the cameras and modify personal details. This access level can't change anything on the system and also can not search.
- User: This access level can not change system preferences or other user's details, other wise has access to other things including search.
- administrator: Has complete access.

Camera Name :



- Use this option to change the display names for the cameras. The name will initially be greyed out so the user must click on the “Modify” button to be able to change the names. Click on “Save” after.

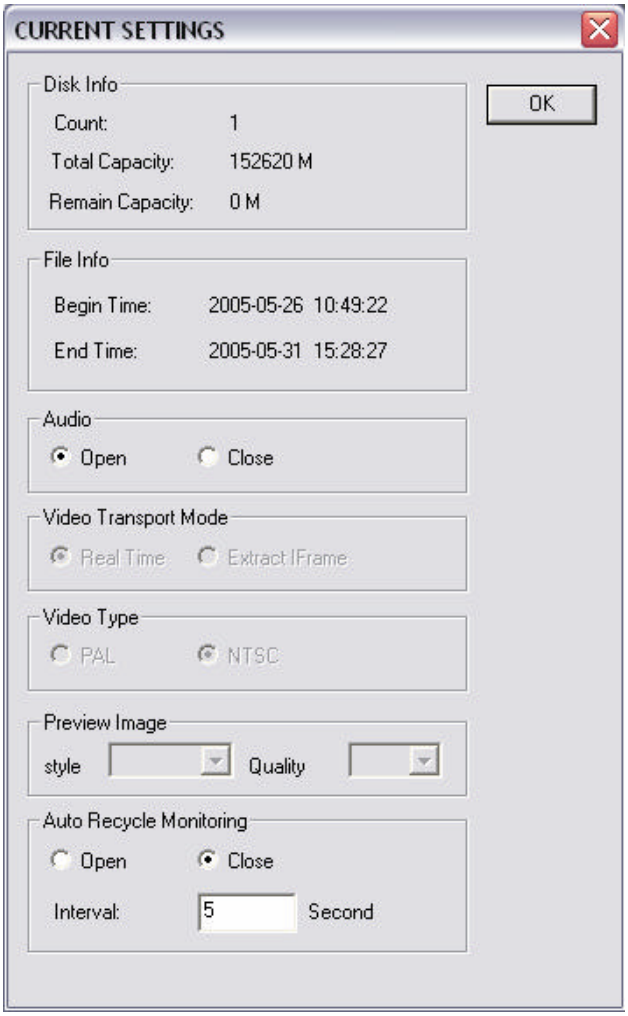
Request Control :



- The web client software allows multiple users to view the video but if the user wants control of the system to access the PTZ or change information this option can be used. If an existing user already has control of the system, when a new user requests for control, the user will be asked for permission to transfer control to the new user. If the users accessing the system have the same access level the control is assigned to the first person that requests for it but if a user with higher access level is present the control is automatically transferred to the user with higher access. If only one user is logged in or the user already has control the box is greyed out.

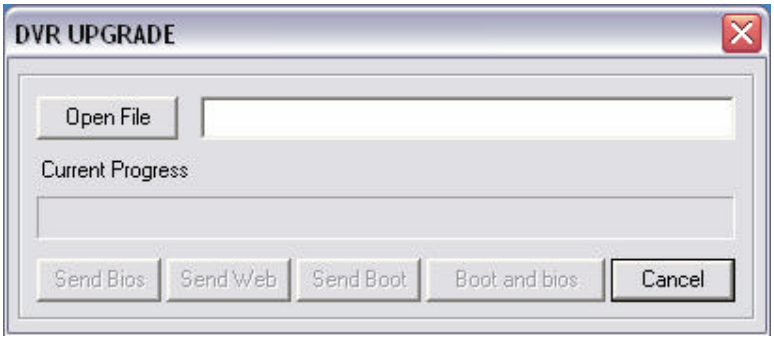
- This is the prompt the user with control will receive if another user requests for the control. Click on OK to transfer the control and Cancel to keep it (not transfer control to the other user)

Current Settings :



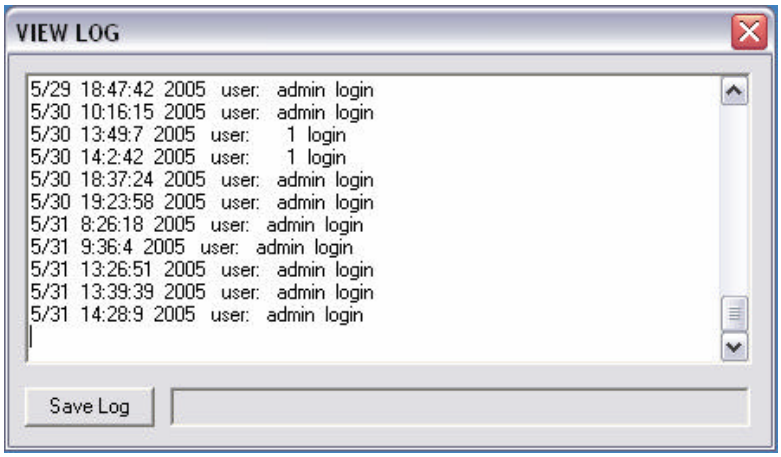
- Use this to check system information. Also from this window the user can enable or disable the audio recording feature, select video transmission speed (real time for live video and extract frame for less transmission). If the user selects Auto Recycle Monitor the system will sequentially show each camera according to the time interval selected by the user.

DVR Upgrade :



- An Administrator can upgrade the software installed on the DVR remotely using this window. To upgrade the software click on open to browse the file, then click on the appropriate button below. After the upgrade the DVR will automatically restart.

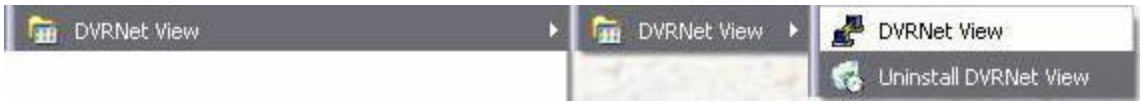
View Log :


VIEW LOG
5/29 18:47:42 2005 user: admin login
5/30 10:16:15 2005 user: admin login
5/30 13:49:7 2005 user: 1 login
5/30 14:2:42 2005 user: 1 login
5/30 18:37:24 2005 user: admin login
5/30 19:23:58 2005 user: admin login
5/31 8:26:18 2005 user: admin login
5/31 9:36:4 2005 user: admin login
5/31 13:26:51 2005 user: admin login
5/31 13:39:39 2005 user: admin login
5/31 14:28:9 2005 user: admin login
Save Log

- Use this option to view the log saved on the DVR.

Matrix Control :

Chapter 3.3 To Uninstall DVRNet View



- Left click on Start and left click on programs and left click on DVRNet View and left click on DVRNet View again and left click on Uninstall DVRNet View.

- To continue with the uninstalling click yes.

- When yes left clicked on the above screen the windows would prepare to remove the DVRNet View.

- It may take several minutes to remove the DVRNet View, according the system speed.

Chapter 4 Features and Specifications

4.1 SPECIFICATIONS FOR DVR

Parameter	4CH	8CH	16CH
Processor	High performance industry level embedded microprocessor		
Operation System	Embedded operating system (Linux)		
System Resources	Pentaplex operation: Multi-channel viewing, recording, playback, set-up and network operation simultaneously		
Interface	Friendly GUI (graphic user interface)		
Input Devices	USB mouse, front panel, remote control or network simulator		
Input	Built-In Alpha numeric keyboard		
Shortcut	Copy/paste, USB mouse right-key shortcut menu, USB mouse screen switch function		
Video Compression	MPEG-4/H.264		
Audio Compression	PCM		
Video Input	4/8/16CH composite video input: (NTSC/PAL) BNC ($1.0V_{P-P,}$ 75O)		
Video Output	2 BNC (1.0VP-P 75 ohm) composite video output, 1 VGA output Switch between BNC and VGA output		
Video Standard	NTSC (525 line, 60f/s), PAL (625 line, 50f/s)		
Recording Speed	Real-time recording: NTSC 1f/s to 30f/s per channel and PAL 1f/s to 25f/s per channel		
Display	1/4 windows	1/4/9 windows	1/4/9/16 windows
Touring	Supported		
Resolution (NTSC/PAL)	Real-time monitor: D1 704×576/704×480 Record backup: CIF 52×288/ 352×240		
Motion Detection	192 (16×12) grid area configurable; multi-level detection sensitivities		
Image Quality	6 level image control selectable per channel		
Area Masking	Random size selection for area masking protection		
Image Information	Channel information, time information and protected area covering information		
TV Adjust	Auto-adjustment for anemographic images; luminance and contrast configurable		
Screen Lock	Specific display screen lockable (Blue screen covered for unauthorized users) to ensure data security		
Channel Information	Channel name, recording status, screen lock status, video loss status, and motion detection status shown on the bottom left of display screen		
Color Configuration	Hue, luminance, contrast, saturation and signal gain configurable for each channel		

Audio Input	4/8/16CH audio input 200-1000mv 10KO
Audio Output	1CH audio output 200-3000mv 5KO(RCA)
Hard Disk	Supports up to 8 high capacity Hard Drives (6 with CD-RW/DVD-RW)
Hard Disk Consumption	Audio PCM 28.8Mbyte/Hour ADPCM 14.4Mbyte/Hour Video 56-900Mbyte/Hour
Hard Disk Management	Hibernating function for non-working Hard Drives reduces power waste and extends life of Hard Drives
Recording Mode	Manual, motion detection, schedule and alarm recording
Recording Duration	1 to 120 minute file record duration configurable (Default 60 minutes)
Overwrite/Stop Mode	Overwrite mode or stop mode selectable when hard disk is full
Record Search	Search record by time, type and channel
Playback	Multi-level fast-forward, multi-level reverse, single frame playback and scroll
Multi-switching Mode	Switch between recorded files Switch between channels recorded at the same time Play recorded files continuously (Auto-play record of the same channel one file after another)
Multi-channel Playback	1 channel, 2 channel or Multi-channel playback for specific mode
Display Zoom	Split screen/adaptive screen/full screen for multi-channel playback
Selective Enlargement	Zoom in feature under full screen mode
Backup Features	Hard Drive backup External USB storage devices (USB flash memory, Removable Hard Drive, USB CD-RW). IDE CD-RW, IDE DVD-RW Network download and backup
Network Control	Real-time monitoring DVR configuration through client and web browser DVR update through client and web browser Check video loss and alarm information Pan-tilt control Record download and playback Multi-DVR using Central Management Software Duplex transparent serial port Network alarm input and output Voice dialog Multi-screen preview
Motion Detection	192 (16X12) configurable detection areas; multi-level sensitivity adjustment recording and dialog box popup, relay triggers message notification
Video Loss	Relay trigger and on screen message notification
External Alarm	Sensor recording, Relay trigger and on screen message notification

Manual Alarm Control	Enable and disable sensor inputs Control output relays
Alarm Input	16 channel grounding alarm input
Alarm Output	6 channel relay output (1 controllable +12V output)
Alarm Relay	30VDC 2A, 125VAC 1A
USB Port	Connect with external USB devices
Network Interface	RJ45 10M/100M adaptive Ethernet port
RS485	Pan-tilt control interface, multiple protocols supported
RS232	Common serial port, keyboard interface and transparent serial port
Hard Disk Information	IDE interface status, Hard Drive information, working Hard Drive number
Bit Rate Stat.	Bit rate statistic of each channel; bit rate waveform display
System Log	1024 items system log; search log by time and type
System Version	Recording channel number, alarm input & output channel number, system version and release date
Online User	Online user display with lock out function
User Management	Multi-level user management; 48 configurable functions Supports adding and modifying users and groups (no limitation)
Password Protection	Account lock: 5 password input attempt limitation. Lock out for 30 minutes
Update	Web browser, client and specific update tool USB flash memory update
Login	Login by user name and password to ensure security
Logout	Logout, shutdown and restart selectable
Shutdown	Shutdown power configurable
Power Supply	220V±25% 50±2% Hz / 110V 60Hz
Power Consumption	40W
Working Temperature	0C -+ 55C
Working Humidity	10% - 90%
Working Atmosphere	86kpa - 106kpa
Size	2U standard size; 440mm (width) X 460mm (depth) X 89mm height
Weight	7.5 KG
Installation Mode	Desk top or 19” rack mount

4.2 FEATURES

Viewing Options	1 Analog CCTV monitor output, 1 spot monitor output and 1 VGA monitor output 1/4/9/16 window monitoring Display of real-time bit rate and hard disk consumption Information of recording, motion detection, video loss, screen lock, view log file etc
Compression Mode	Video Compression: MPEG-4/H.264 4/8/16CH video compression and real-time hardware compression for each channel Real-time synchronization for audio and video
Storage	Supports up to 8 large capacity Hard Drives Overwrite mode and stop mode selectable when hard disk is full Special storage format for data security
Backup	IDE port (hard disk and IDE CD-RW) backup and USB port (USB flash memory, USB removable Hard disk and USB CD-RW) backup Download and backup through network
Recording and Playback	Multi-task operation: real-time recording, single channel playback, remote monitoring, records search and etc. Multiple recording modes: manual recording, schedule recording, alarm recording, motion detection recording (pre-recording for alarm recording and motion detection recording). Record playback through network Fast classified record research function. Multiple playback mode: fast-forward, slow-forward, single frame and backward. Display of accurate recording time. Selective enlargement under full screen mode
Network Operation	Remote monitoring Pan-tilt control Record search and playback DVR parameter configuration and software update Remote alarm management and system log search Embedded TCP/IP protocol enables Web browser control Multi-level user management; power configurable for different user and group
Alarm Relay	4/8/16 channel grounding alarm input; video loss alarm and motion detection alarm supported; panel alarm includes smoke detector, IR detector etc. Multi-channel relay output, enables alarm relay and onsite lighting control Protective circuit for both alarm input and alarm output
Communication Interface	Special interface for alarm input and pan-tilt control One RS232 port used for keyboard expansion, normal serial port, matrix control etc. One RJ-45 port for network control
Pan-tilt Control	Support pan-tilt decoder using RS485 port Multiple decoding protocols expandable for pan-tilt and speed

	dome control
Smart HDD Manager	Alarm outputs for corrupt and unusable Hard Drives Allows non-working hard disks to hibernate to reduce power consumption and extend lifetime.
Intelligent Operation	Full mouse control, built in keyboard & copy, paste, & function.

Chapter 5 Operational manual before installation

5.1 PRIMARY CHECK

- When you receive the DVR, the first thing you must do is to check if there is any obvious damage to the appearance. The protective materials used for the package of the DVR can handle most accidental clashes during transportation.

5.1.1 OPENING YOUR DVR

- Open the box and check all contents. Check the items against the list on the warranty card. After check is complete remove the protective cover of the DVR.

5.1.2 FUNCTIONS AND CONNECTIONS

- Various key functions on the front panel and various interfaces on the rear panel are introduced in detail in this instruction manual.
- Please check the model against your purchase carefully. The tag on the rear panel is very important for after-sales service. Do not destroy or discard it. To provide warranty, the product's serial number is required.

5.2 INTERNAL FUNCTIONS

5.2.1 INSTALLING HARD DISK DRIVES

- Hard Drives must be jumped as Master or Slave for each IDE slot

5.2.2 SELLECTING HARD DISKS

- 7200 rpm or higher Hard Disk Drives have been tested to work best with our DVRs.

5.2.3 SELECTING HARD DRIVE SIZE

1. The DVR can handle 40 Gig to 500 Gig Hard Drives, (Stability tested 120 Gig to 250 Gig in the lab)
2. Calculating recording time of Hard Drive
   The computing formula of total Hard Drive size is:
   The total size (M) = channel numbers X recording hours X Hard Drive used per

hour (M/h)

So we can get the computing formula of recording hours:

Recording hours= the total size M

Hard Drive used per hour (M/h)

- Because the DVR adopts MPEG4/H.264 compression technology, this will produce a considerable dynamic range when compressing data. So when you calculate the total Hard Drive size, you should estimate the average Hard Drive size per hour per channel.

  Example: For a 4ch DVR, the average size of Hard Drive used per hour per channel is 200M/h. Now if you hope the DVR can record for 30 days with 24 hours one day, the total size of Hard Drive needed is: 4 channels * 30 days * 24 hours * 200 M/h = 576G. So you need install five 120G Hard Drive s or four 160G Hard Drives.

5.2.4 HARD DRIVE INSTALLATION (SEE DIAGRAM IN CHAPTER 3)

- IDE cables, fastening screws and a Hard Drive shelf are already provided in the accessories to simplify your installation.
- Pay special attention to Hard Drive jumper configuration: If only one Hard Drive is connected to an IDE port, the jumper must be to MASTER. If two Hard Drives are connected to one IDE port, one jumper must set as MASTER and the other as a SLAVE. Do not set Hard Drive as CS Enable or Cap Limit.

5.2.5 ABOUT CD/DVD BURNERS

- DVR supports IDE port and USB port Burners. If you use an IDE port to connect CD or DVD burner, you must set the jumper as MASTER. Use our company's already tested brands. You can consult the technical support or visit our website for details. After Hard Drive and burner installation, double check that the IDE cables and power cord is secured before mounting the outer cover.

5.2.6 CONNECTION OF EXTERIOR POWER SUPPLY

- Switch the clasp near the power socket to the correct position according to the input voltage. (110V or 220V operation)
- It is recommended to use an uninterruptible power supply (UPS) to protect the DVR from power surges and failures.
-

5.2.7 INSTALL DVR IN A SERVER CABINET

- The size of DVR is 2Ustandard industrial case 441mm (Wide) x430mm (Deep) x89mm (High)

  Put the cabinet in a place with circulated air. Avoid extreme heat, humid and heave dusty conditions. You should clean inlet opening, cooling fan etc. with a

soft dry brush.

5.3 CONNECTING VIDEO/AUDIO INPUT/OUTPUT

5.3.1 VIDEO INPUT CONNECTIONS

- The video input interface is BNC. The request of video input is NTSC/PAL BNC 1.0V_{P-P} 75O.
- The video signal should meet terms with the national standards. High SNR, low distortion, low interference, natural color and suitable brightness are needed for the video signal.
- To ensure a stable and reliable camera signal, the cameras should be installed properly. Under backlighting, low illumination surroundings that are not suggested, the user should use a backlight compensation camera or low illumination camera.
- The power supply of the camera should be grounded with the power supply of the DVR to ensure the normal operation of the camera.
- Use a high quality, good-shielded cable and choose a suitable BNC model according to the transmission distance. For longer distance, you should use twisted pair, add video compensation devices or use optical fiber transmission to ensure video quality.
- Keep the video signal away from strong electromagnetic interference, especially high tension current.
- BNC connections on both ends should be well connected. Avoid dry joint, lap welding and rust.

5.3.2 AUDIO INPUT CONNECTIONS

- 4, 8 channel and 16 channel DVRs use an RCA audio connections. Due to high impedance of audio input, amplified microphones must be used.
- Audio transmission is similar to video transmission. Try to avoid interference, dry joint, loose contact and high tension current.

5.3.3 VIDEO OUTPUT CONECTIONS

- Video output includes 2 BNC (1.0VP-P, 75O) outputs and a VGA output.
- We recommend you use a CCTV monitor as video output device.
- The CCTV monitor has the following advantages:

1. Can adapt long-time monitoring. Ordinary residential devices are easy to age, damage and even burn under long-time operation.
2. Has higher definition and color recover ability
3. Better stability and anti-interference ability, adapt to various complicated surrounding.

- When a PC monitor is used, the following points should be considered
  1. PC monitor cannot be powered on for long period of time.
  2. Regular demagnetization benefits the monitor to work in normal state.
  3. Keep away from strong electromagnetic interference devices.
- Using TV as video output device
  1. Reduce the hours of use to prevent image burning
  2. Control interference from the power supply and other devices.
  3. Short circuit problems of low quality TVs may damage other devices.

5.3.4 AUDIO OUTPUT CONNECTIONS

- The audio output parameter of the DVR is 2000mvp-p 1KO (BNC). It can connect directly with low impedance earphone, active sound box or amplifier-drive audio output device.
- If the sound box and the pick-up cannot be separated spatially, it will most likely cause squeaking. At this time, you can adopt the following measures:
  1. Use better sound pick-up with better directing property.
  2. Reduce the volume of the sound box to the value under which squeaking discontinues.
  3. Using more sound-absorbing materials that can reduce voice echo and improve acoustics environment.
  4. Adjust the layout to reduce squeaking.

5.4 CONNECTION OF ALARM INPUT AND OUTPUT DEVICES

- Before connection, please pay attention to the following points:

1. Alarm input

- First confirm if the alarm input is a grounding alarm input and not a voltage alarm input. A grounding signal is needed for alarm input.

2. Alarm output

- The alarm output port should not be directly connected to a high power load. To avoid a heavy current that will destroy the relay, use a co contactor between the alarm output port and the load.

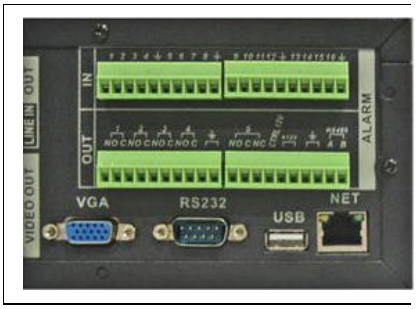
3. How to connect PTZ decoder

- Ensure the decoder has the same grounding as the DVR; otherwise common mode voltage may fail to control the PTZ. Shielded twisted wire is recommended and

the shielded layer is used to connect to the grounding.

- Avoid high voltage. Ensure proper wiring and protective measures
- For long signal wires, 120O should be parallel connected between A, B lines on the far end to reduce reflection and guarantee the signal quality.
- "485 A, B" of DVR cannot parallel connect with "485 port" of other device.
- The voltage between of A, B lines of the decoder should be less than 5v.
- Provide the power to alarm device with a current less than 1A.
- Poor grounding of the front-end devices may cause damage to chips.

Descriptions about alarm input and output



1. ALARM (1…16) are 16 channels grounding alarm input.
2. In **OUT** row, 1-NO C, 2-NO C, 3-NO C and 4-NO C are 4
3. Normal open relay outputs. 6-NO C NC is a NO/NC relay output.
4. "12V": Need peripheral equipment provide +12 power with 1 A current.
5. AB: used to connect some control devices such as pan/tilt decoder.
6. If you connect many pan-tilt decoders, you should parallel connect
7. 120O between A, B lines.
8. "⏚"ground.

- 16 channel grounding alarm inputs. (Both Normal open and Normal close type)
- Short connect between **COM** end and **GND** end of the alarm detector (the power of the alarm detector must be provided by outside power).
- Parallel connect the Ground of the DVR and the ground of the alarm detector.
- Connect the NC port of the alarm sensor to the DVR alarm input (ALARM)
- If you need to restore the touched-off alarm remotely, you have to supply the controllable 12 V power of the DVR to the alarm detector, such as the smoke detector.
- Connect the ground of the outside power with the ground of DVR.
- 2 ways relay alarm output (normal open contacts). Should provide the power supply to the alarm detector.
- To avoid over loading, please read carefully about the related parameters of the relay. (See below table)
- The controllable +12v can provide the power for restorable smoke detector.
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5.4.1 RELAYS' PARAMETER OF THE ALARM OUTPUT END

- The 25-pin RS485 port is realize pan-tilt-zoom control, enables the activation of alarms. RS485 connection can control carious pan-tilt-zoom decoders, and the specific type of the decoder can be selected in the setting in the menu. Switch out pin number is marked on DB25 plug. The definition of the pin is as below. The

broken line the graph means it's being connected inside.

- 1 14 2 15 3 16 4 17 connects to alarm input: ALARM1~ ALARM8
- 5 18-OUT1 6 19-OUT2 two linked open output
- 7 20-OUT3 are connected inside either is controllable +12V output
- 8 9 21 are +12V power output, able to be as the power supple for alarm sensors
- Either pin 10 22 is the B line of RS485, either pin of 11 23 is the A line of RS485
- 12 13 24 25 are earth lines

5.5 SELECT AND CONFIGURE RECORDING MODE

- The DVR can provide multiple recording modes. The user should configure the recording mode due to actual needs. To get the best balance between the recording time and Hard Drive space used, the user should pay attention to the following points:
    1. The recording period for motion detection or alarm cannot overlap within the recording schedule.
    2. Under poor illumination, the user should avoid using motion detection recording. It is suggested to use a more stabilized alarm recording with linked light control to assure the recording quality and rational use of the Hard Drive.
    3. The sensitivity of motion detection should be adjusted and tested according to the environment to avoid to false reports or failure to report.

5.6. NETWORK CONNECTION

- DVR provides a standard RJ45 port and embedded TCP/IP protocol to connect to the LAN or Internet. During configuration of a LAN, please use a switch instead of a HUB. This will guarantee enough bandwidth and avoid long distance wiring. Please choose proper bandwidth access mode.
- Ethernet cable should be made according to standard.